Work Order ID 77385

December-06-11 1:45:34 PM

77385

Item ID: D3391-021 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Fwd Tube Assembly

Start Date: 06/12/2011 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 13/12/2011 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run Start *NR1*

Approvals: **Process Plan:** M.C.J **Date:** 11/12/06 **Tooling:** ____ **Date:** ____

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D3391	I

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
100 *100* Skidtubes Skidtubes	Skidtubes	0.00				DP 12-1-5
	Memo Cut extrusion to 46.52 +0.010 -0.020	0.00				
110 *110* CNC Bend 1 CNC Delta 100 Bender	BENDING MACHINE - SKIDTUBES	0.00				DP 12-1-5
	Memo Bend as per Dwg D3391 Using Bend Prog 3391021	0.00				
120 *120* QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00	1	0		BE 12-01-06
	Memo	0.00				

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 77385
December-06-11 1:45:34 PM

77385

Item ID:	D3391-021	**Accept**	*N900040100*
Revision ID:		**Setup**	**Start** *NS1*
Item Name:	Fwd Tube Assembly		**Stop** *NS2*
Start Date:	06/12/2011	**Start Qty:** 1.00 *1*	**Cust Item ID:**
Required Date:	13/12/2011	**Req'd Qty:** 1.00 *1*	**Customer:**
Reference:			

Run **Start** *NR1* **Stop** *NR2*

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________
QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* HAAS 1 HAAS CNC vertical machine #1	HAAS CNC VERTICAL MACHINING #1 **Memo** 1-Machine as per Folio FA590 Rev. AA & Dwg D3391 Rev. I Identify as D3391-1 2-Deburr	0.00 0.00	aml 12/01/07			1	Ø		
140 *140* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB **Memo**	0.00 0.00	aml 12/01/07			1	Ø		
150 *150* Mill Conv Conventional Milling Machine	CONVENTIONAL MILLING MACHINE **Memo** Drill X1 Aft cap as per Dwg D3391 .1875" dia	0.00 0.00	aml 12/01/08			1	Ø		

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: _______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 77385 *77385*
December-06-11 1:45:34 PM

Item ID: D3391-021 **Accept** *N900040100* **Setup Start** *NS1*
Revision ID:
Item Name: Fwd Tube Assembly **Stop** *NS2*

Start Date: 06/12/2011 **Start Qty:** 1.00 *1* **Cust Item ID:**
Required Date: 13/12/2011 **Req'd Qty:** 1.00 *1* **Customer:**
Reference:

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________ **Run Start** *NR1*
QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.00	12/01/08			1	Ø		
170 *170* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00	12-01-08			1	Ø		

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Work Order ID 77385 *77385*

December-06-11 1:45:34 PM

Item ID: D3391-021 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: Fwd Tube Assembly **Stop** *NS2*

Start Date: 06/12/2011 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 13/12/2011 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run Start *NR1*

Approvals: **Process Plan:** ____________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ____________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 *180* Skidtubes Skidtubes	Skidtubes	0.00							
	Memo	0.00							

1-Drill float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

SAO 12-01-09

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5- open float bag holes 0.328" and counter sink as per dwg D3391

SAO 12-01-09

6-Deburr & Scribe Batch number Inside aft end.

7-Transfer drill D3391-021 with D3391-023 AC 12-01-09

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 *190* QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00							
	Memo	0.00 S 12/9/10							

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ______

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ______

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Work Order ID 77385 *77385*

December-06-11 1:45:34 PM

Item ID: D3391-021 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Fwd Tube Assembly

Start Date: 06/12/2011 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 13/12/2011 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run Start *NR1*

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200 *200* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.00				1	CF	12-1-10	
210 *210* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00				JT		12-1-11	
220 *220* Skidtubes Skidtubes	Skidtubes Memo 1-instal spacers as per dwg D3391 A/R Magnabond 6398 batch: 117806 exp. date: 12-06 cure time 12hrs. as per QSI015 2- grind crossbolt flush 3-back drill crossbolt if necessary	0.00 0.00				JT		12-1-11	

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W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** _____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 77385 *77385*

December-06-11 1:45:34 PM

Item ID: D3391-021 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Fwd Tube Assembly

Start Date: 06/12/2011 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 13/12/2011 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Approvals: **Process Plan:** ____ **Date:** ____ **Tooling:** ____ **Date:** ____ **Run Start** *NR1*

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230 *230* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00	S 12/01/15						
235 *235* HandFinish Hand Finishing	Pressure Wash per QSI005 4.3 Memo AND REALODINE AS PER PAR09-043	0.00 0.00				1X ø M-f 12/01/16			
240 *240* Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum Memo START TIME: 9:30 OVEN TEMPERATURE: 320°F FINISH TIME: 10:00	0.00 0.00				1X ø M-f 12/01/16			

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W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ______________ **Disposition:** ______________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 77385

December-06-11 1:45:34 PM

77385

Item ID: D3391-021

Revision ID:

Item Name: Fwd Tube Assembly

Accept *N900040100*

Setup Start *NS1*

Stop *NS2*

Start Date: 06/12/2011 **Start Qty:** 1.00 *1*

Required Date: 13/12/2011 **Req'd Qty:** 1.00 *1*

Cust Item ID:

Customer:

Reference:

Run Start *NR1*

Stop *NR2*

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250 *250* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00				1	ϕ	Ml	12/01/16
255 *255* Skidtubes Skidtubes	Skidtubes Memo **** install D3591-1 spacer as per DS19364 and wearplate as per DWG ****	0.00 0.00				1	ϕ	Ml	12/01/16
257 *257* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00 δ 12/01/19							

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W/O:	WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B				
DATE	**STEP**	**Description of NC** Section A	**Initial** Chief Eng	**Action Description** Chief Eng	**Sign & Date**	**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector

NOTE: Date & initial all entries

Work Order ID 77385
December-06-11 1:45:34 PM

77385

Item ID: D3391-021
Revision ID:
Item Name: Fwd Tube Assembly

Accept *N900040100*

Setup Start *NS1*
Stop *NS2*

Start Date: 06/12/2011 **Start Qty:** 1.00 *1*
Required Date: 13/12/2011 **Req'd Qty:** 1.00 *1*
Reference:

Cust Item ID:
Customer:

Run Start *NR1*
Stop *NR2*

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______
QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
260 *260* Packaging Packaging	Identify as per dwg & Stock Location: W10 / Memo	0.00 / 0.00	D412-742-043 / B75904			1	ϕ		12/6/11 CG
280 *280* QC Quality Control	QC21- Final Inspection - Work Order Release / Memo	0.00 / 0.00					12/1/23		

12-01-20

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ________________ PAR #: _______ Fault Category: ______________ NCR: Yes No DQA: _____ Date: _________

Resolution: _______________ Disposition: _______________ QA: N/C Closed: _________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

December-06-11 1:45:38 PM

Work Order ID: 77385 *77385*

Parent Item: D3391-021 *D3391-021*

Parent Item Name: Fwd Tube Assembly

Start Date: 06/12/2011 **Required Date:** 13/12/2011

Start Qty: 1.00 **Required Qty:** 1.00

Comments:
IPP A05.09.13New issue KJ/JLM
IPP B06.02.10Dwg rev.D ecn 773 EC
IPP C06.05.02Added inspections EC
IPP D 07.03.13 rev F dwg EC
IPP E 07.11.07 revG dwg ecn1053P EC verified by: DD
IPP Rev:f ECN 1056 07-11-12 DD verified by: EC
IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC
IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC
IPP Rev I 09.02.02 added hardware EC verifified by: DD IPP Rev:J
11.11.14 AS PER REV.I DD verified by:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4095-051 *D4095-051* Wearpad Assembly		Manufactured	No			255	Each	13.0000	1 **	1 B76539 (x1)	JM	12/01/10	
		Location: FP				Loc Qty: 13							
		76220				7							
		76539				6							
D6013-047 *D6013-047* Skidtube Material	B72505	Manufactured	No			100	Each	0.0000	1 **	1 (1)	DP	12-1-5	
D3670-4-200 *D3670-4-200* SPACER		Manufactured	No			220	Each	63.0000	4 **	4	JT	12.01.11	
		Location: LG001				Loc Qty: 63							
		72851				63				XY			

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 77385 *77385*

Parent Item: D3391-021 *D3391-021*

Parent Item Name: Fwd Tube Assembly

Start Date: 06/12/2011 **Required Date:** 13/12/2011

Start Qty: 1.00 **Required Qty:** 1.00

D3401-041 | Manufactured | No | 255 | Each | 10.0000 | 1 | 1

D3401-041 **
Tow Cap Assembly

B76211 x1 [illegible] 12/06/16

Location		Loc Qty	Loc Code	
FP002		10		
	71878	10		

AN960C10L | NAS1149C0332R | Purchased | No | 255 | Each | 0.0000 | 10 | 10

AN960C10L **
washer

M119736(x10) [illegible] 12/06/16

AN3C4A | Purchased | No | 255 | Each | 2,382.000 | 10 | 10

AN3C4A **
BOLT

[illegible] 12/01/16

Location		Loc Qty	Loc Code	
ST350		2382		
	117313	2		
	117688	5		
	117872	10		
	118112	16		
	118451	2		
	118838	826		
	119328	521		
	119749	1000		x10

D3672-1 | Manufactured | No | 255 | Each | 1,178.000 | 4 | 4

D3672-1 **
Phenolic Washer

[illegible] 12/01/14

Location		Loc Qty	Loc Code	
FP		414		
	66821	414		x4
ST074		764		
	72229	264		
	76277	500		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 77385 *77385*

Parent Item: D3391-021 *D3391-021*

Parent Item Name: Fwd Tube Assembly

Start Date: 06/12/2011 **Required Date:** 13/12/2011

Start Qty: 1.00 **Required Qty:** 1.00 PTO =)

AELS-1032-225	Purchased	No	255	Each	0.0000	10	10		
AELS-1032-225								**	M118386 (10) [illegible] 12/01/16
INSERT									

*AHS4-1032-225

Dart Aerospace Ltd

W/O: 77385	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
11/01/16	255	INSTAL (X2) ALS-4-1032-130 INSERTS M119084 Tube has extra holes per D3391 Rev. H	JW	11/01/16	X2	12.01.16	12/01/23

Part No: D3391-021 **PAR #:** ______ **Fault Category:** ______ **NCR:** Yes No **DQA:** ______ **Date:** ______

Resolution: ______ **Disposition:** ______ **QA: N/C Closed:** ______ **Date:** ______

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

DART AEROSPACE LTD	Work Order: 77385
Description: Fuel Tube Assembly	Part Number: D3391-021
Inspection Dwg: D3391 Rev: I	Page 1 of 1

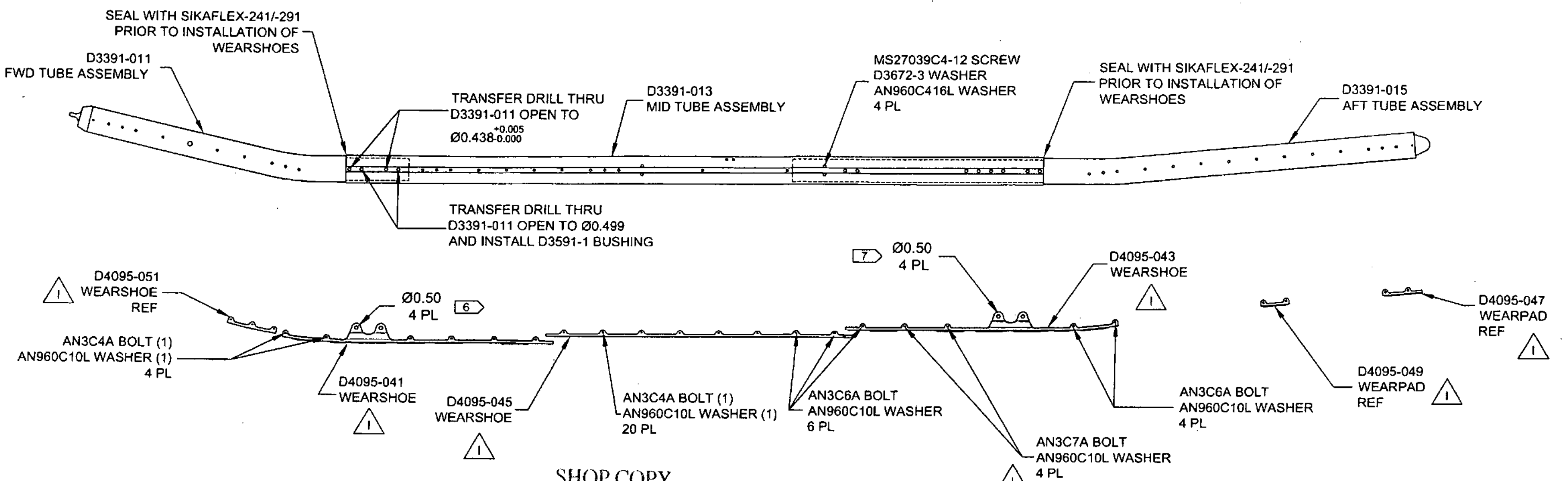
FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
4.250	±.010	4.250	✓		Vern ML-06	
4.250	±.010	4.250	✓		"	
R.187	±.010	R.187	✓		R-6	
.687	+.010 / -.000	.687	✓		Vern ML-06	
3.590	+.025 / -.010	3.607	✓			
3.300	+.040 / -.060	3.320	✓			
1.429	+.040 / -.060	1.420	✓			

Measured by:	[signature]	Audited by:	[signature]	Preliminary Approval:	
Date:	12/01/07	Date:	12.01.08	Date:	

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	

[initials] 10.04.15



SHOP COPY
RETURN TO
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UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 77385 M.L.J
11/12/06

D3391-041 ASSEMBLY

RELEASED 2011-11-04
ECN# 11-662

D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY -041	PART NUMBER	DESCRIPTION
X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
2	D3591-1	BUSHING
4	D3672-3	WASHER
1	D4095-041	WEARSHOE
1	D4095-043	WEARSHOE
1	D4095-045	WEARSHOE
1	D4095-047	WEARPAD
1	D4095-049	WEARPAD
1	D4095-051	WEARSHOE
24	AN3C4A	BOLT
10	AN3C6A	BOLT
4	AN3C7A	BOLT
38	AN960C10L	WASHER
4	MS27039C4-12	SCREW
4	AN960C416L	WASHER

GENERAL NOTES

1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.
6) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
7) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

REV.	DESCRIPTION	BY	DATE
I	REMOVE GASKETS AND REPLACE ALL WEARSHOES; PARTS LIST UPDATE, ZN A8-1, ZN A8-2, ZN A6-4, ZN B6-8; LPS-3 COATING REMOVED FROM NOTE 2, ZN A3-1, ZN A3-2, REMOVED INSERT AELS-1032-130, ZN B6-4, B2-4, C7-8, C3-8; REMOVED HOLES, ZN D6-4 ZN D2-4, ZN D7-8, ZN D3-8	XDF	11.10.13
H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074)	AJS	08.08.20
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07

DESIGN	PH	**DART AEROSPACE USA, INC** KENT, WA
DRAWN	XDF	
CHECKED		DRAWING NO. D3391 — REV. I — SHEET 1 OF 8
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

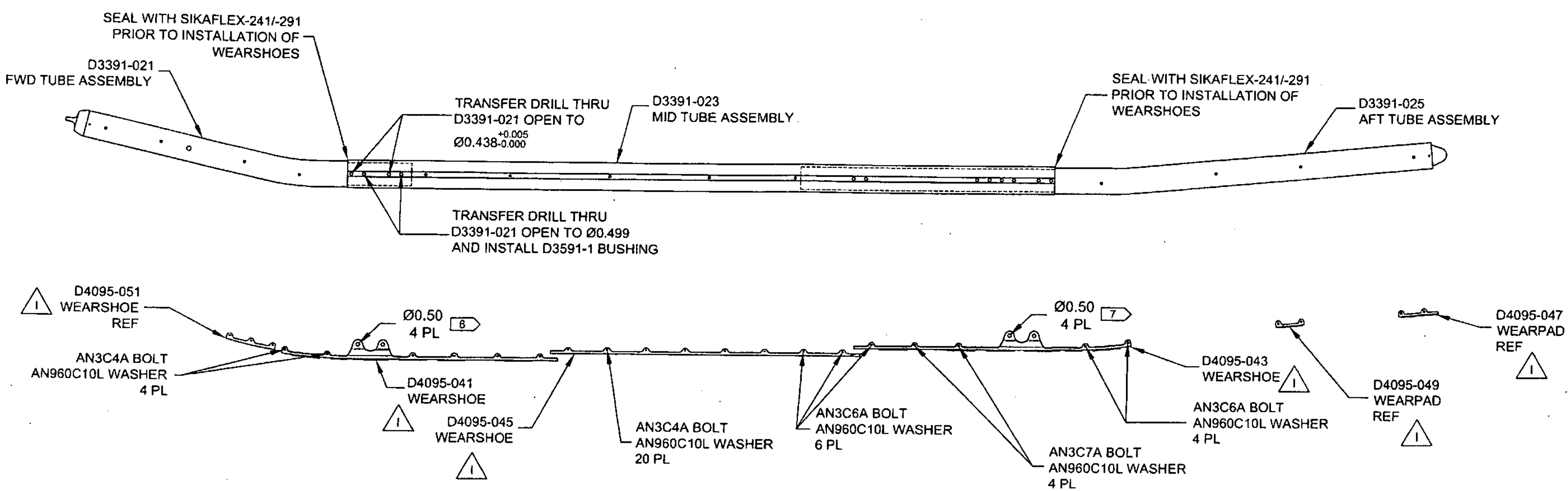
Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

77385



D3391-043 ASSEMBLY

D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY -043	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
2	D3591-1	BUSHING
1	D4095-041	WEARSHOE
1	D4095-043	WEARSHOE
1	D4095-045	WEARSHOE
1	D4095-047	WEARPAD
1	D4095-049	WEARPAD
1	D4095-051	WEARSHOE
24	AN3C4A	BOLT
10	AN3C6A	BOLT
4	AN3C7A	BOLT
38	AN960C10L	WASHER

GENERAL NOTES

1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON"
AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.
6) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
7) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

RELEASED 2011-11-04

DESIGN	PH	**DART AEROSPACE USA, INC** KENT, WA
DRAWN	XDF	
CHECKED		DRAWING NO. D3391 — REV. I — SHEET 2 OF 8
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

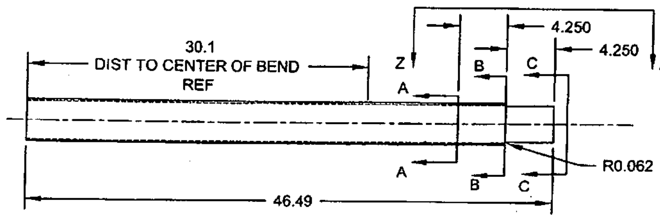
Resolution: ____________________ **Disposition:** _____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

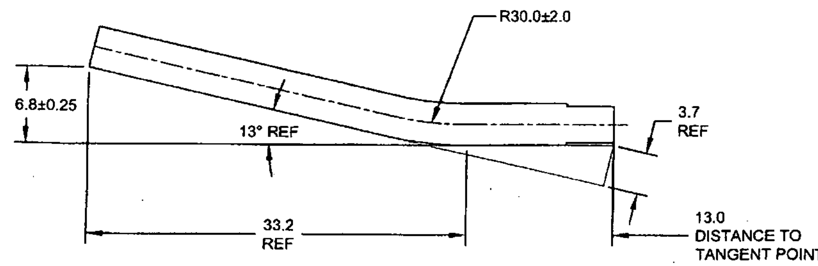
NOTE: Date & initial all entries

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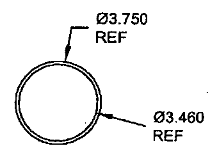
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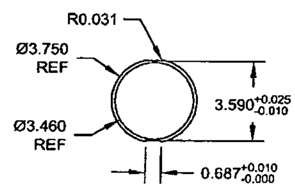
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



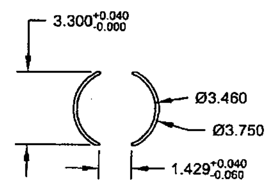
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



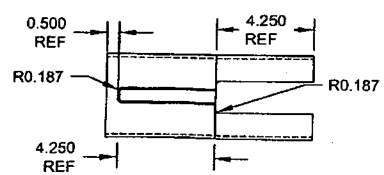
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X



VIEW Z-Z
SCALE 2X

RELEASED
2011-11-04

DESIGN	PH	DART AEROSPACE USA, INC KENT, WA
DRAWN	XDF	DRAWING NO. D3391 — REV. I — SHEET 3 OF 8
CHECKED		
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** _______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** ________

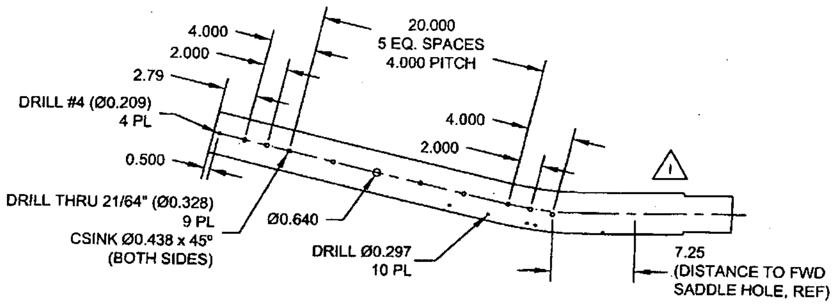
Resolution: ______________ **Disposition:** ______________ **QA: N/C Closed:** __________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

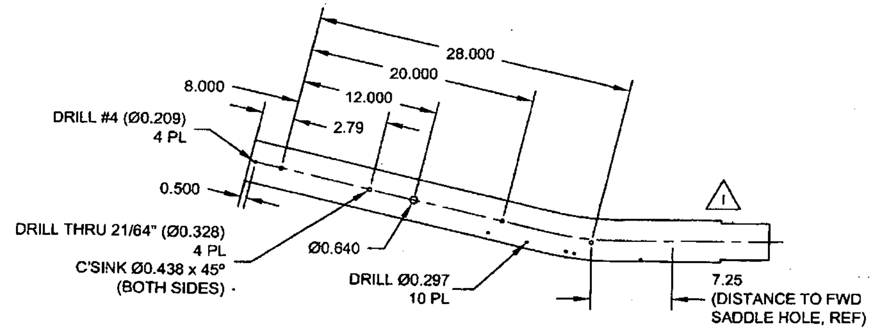
NOTE: Date & initial all entries

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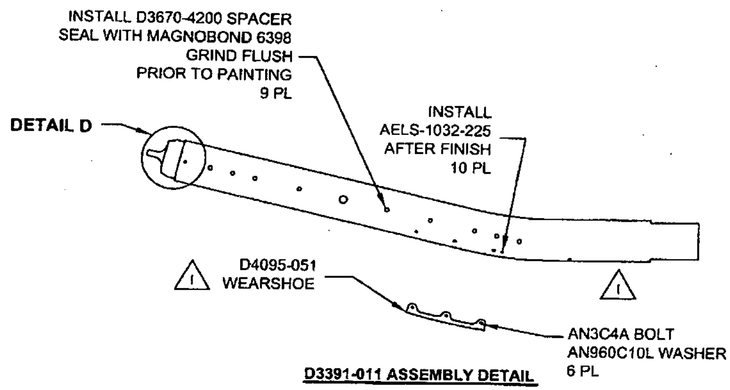
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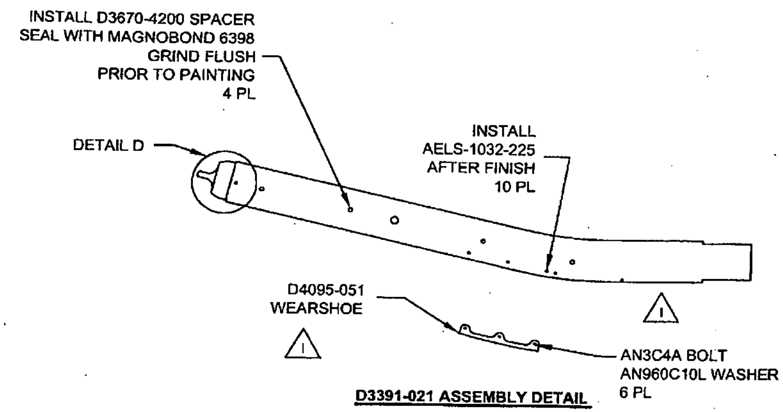
D3391-011 DRILLING DETAIL



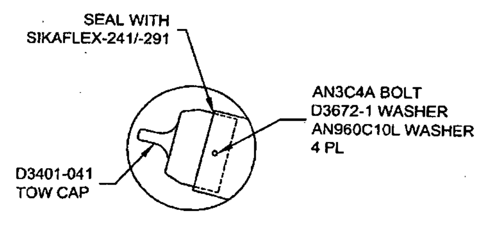
D3391-021 DRILLING DETAIL



D3391-011 ASSEMBLY DETAIL



D3391-021 ASSEMBLY DETAIL



DETAIL D
SCALE 2X

D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X		D3391-011	FWD TUBE ASSEMBLY
	X	D3391-021	FWD TUBE ASSEMBLY
1	1	D3401-041	TOW CAP
9	4	D3670-4200	SPACER
4	4	D3672-1	WASHER
1	1	D4095-051	WEARSHOE
1	1	D6013-047	FWD TUBE
10	10	AN3C4A	BOLT
10	10	AN960C10L	WASHER
10	10	AELS-1032-225	INSERT

RELEASED 2011-11-04

		DART AEROSPACE USA, INC KENT, WA
DESIGN	PH	
DRAWN	XDF	DRAWING NO. D3391 — REV. I — SHEET 4 OF 8
CHECKED		
MFG. APPR.		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
APPROVED		
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

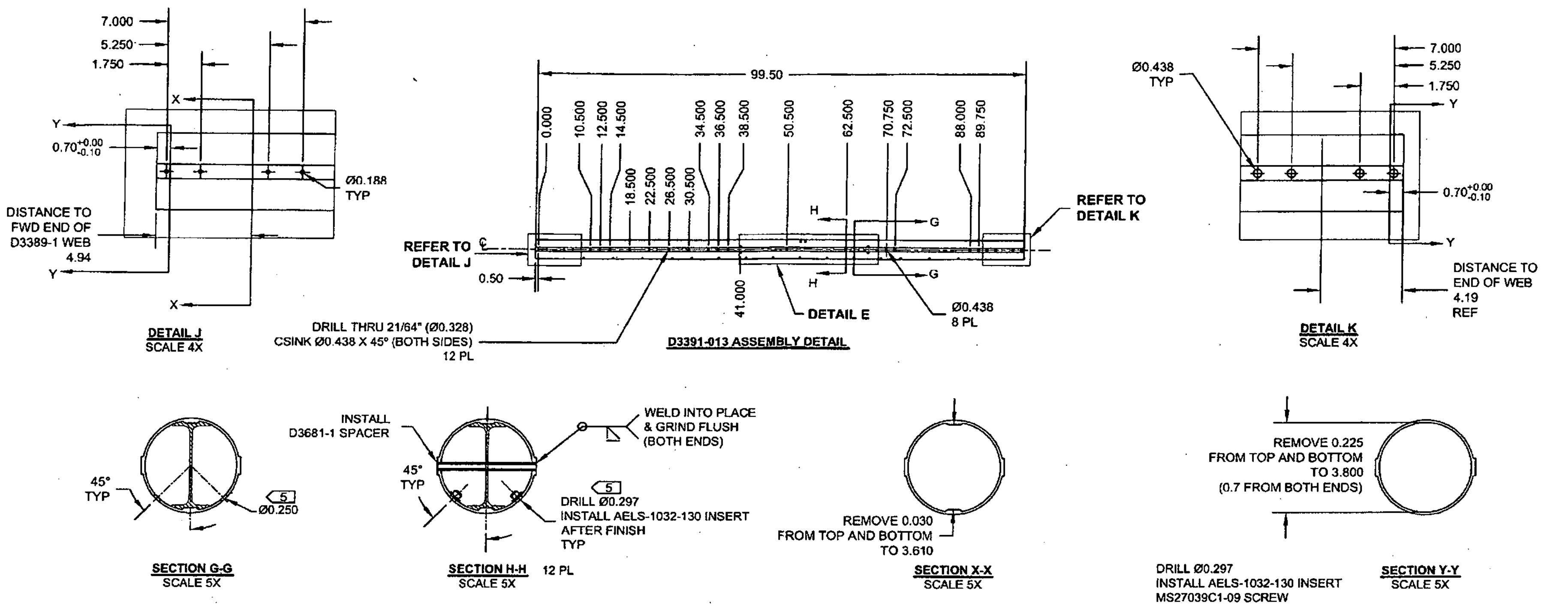
Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

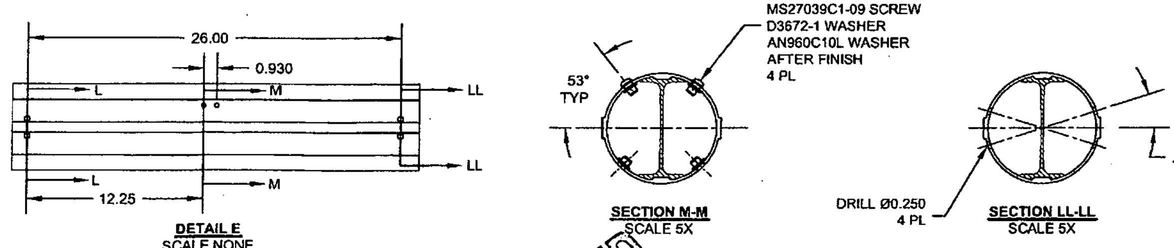
Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

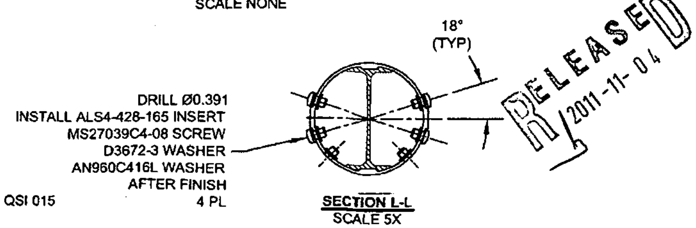
NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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D3391-013 MID TUBE ASSEMBLY PARTS LIST

QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW

D3391-013 MID TUBE ASSEMBLY

1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
3) WELDING: PER DART QSI 004

DESIGN	PH	DART AEROSPACE USA, INC KENT, WA
DRAWN	XDF	DRAWING NO. D3391 — REV. I — SHEET 5 OF 8
CHECKED		
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

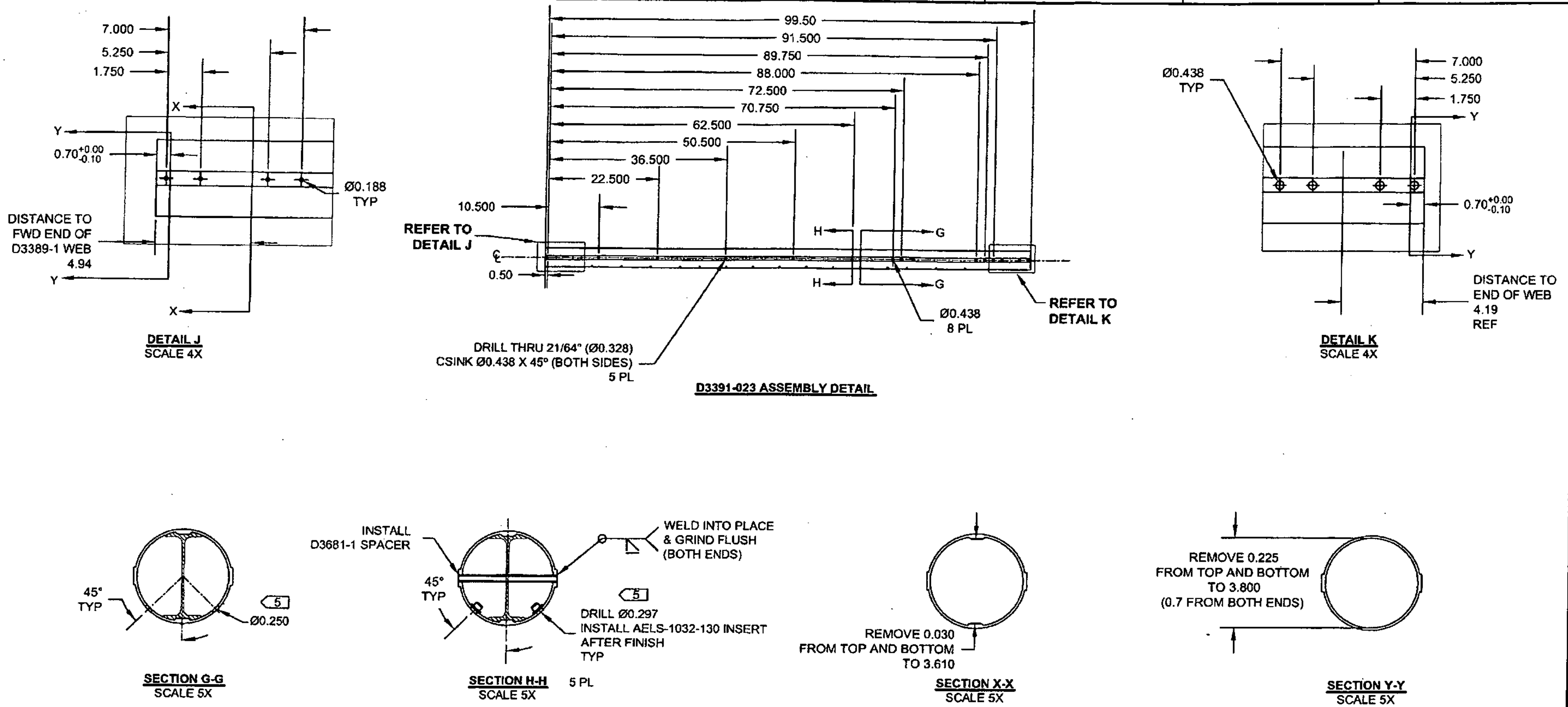
Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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RELEASED 2011-11-04

D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

D3391-023 MID TUBE ASSEMBLY

1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
3) WELDING: PER DART QSI 004

DESIGN	PH	**DART AEROSPACE USA, INC** KENT, WA
DRAWN	XDF	DRAWING NO. D3391 — REV. I — SHEET 6 OF 8
CHECKED		
MFG. APPR.		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
APPROVED		
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ________ **PAR #:** ______ **Fault Category:** ________ **NCR:** Yes No **DQA:** _____ **Date:** ________

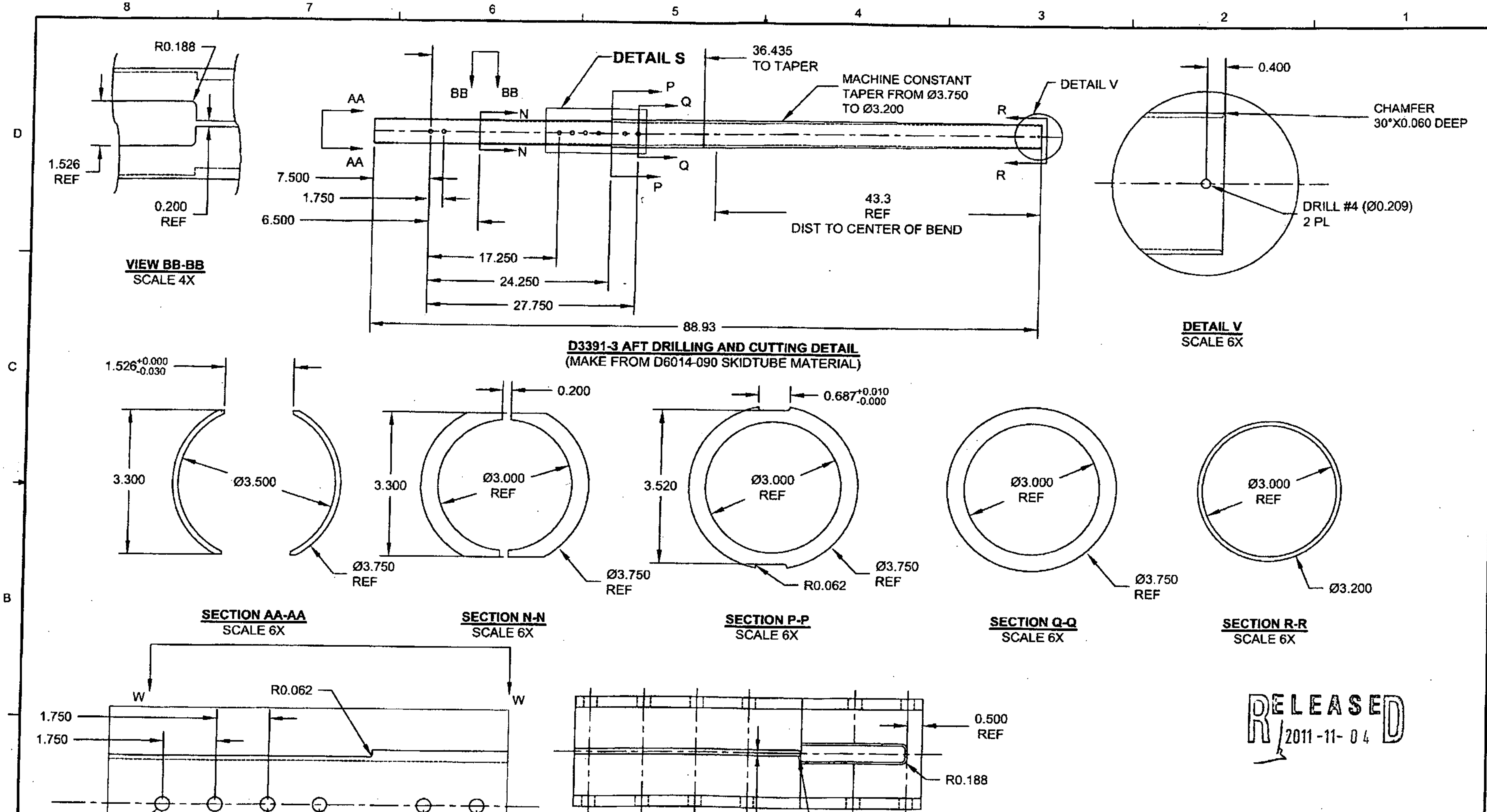
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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DESIGN	PH	DART AEROSPACE USA, INC KENT, WA
DRAWN	XDF	DRAWING NO. D3391 — REV. I — SHEET 7 OF 8
CHECKED		
MFG. APPR.		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
APPROVED		
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

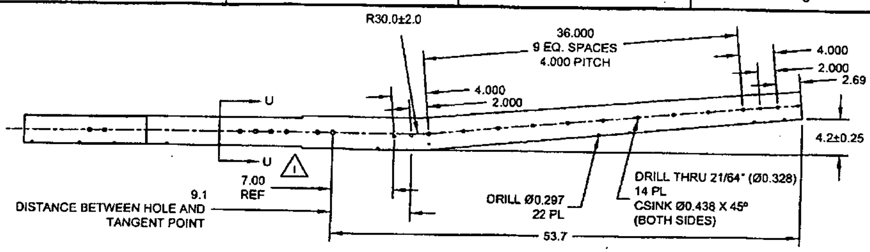
Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

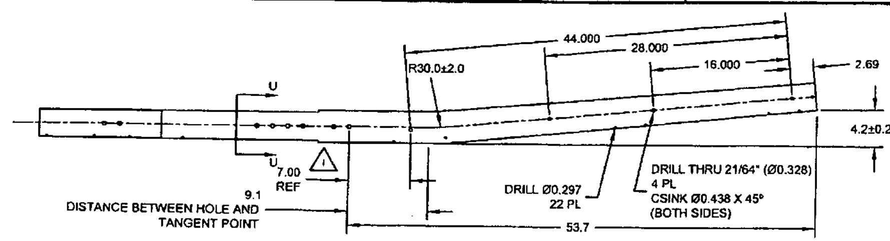
NOTE: Date & initial all entries

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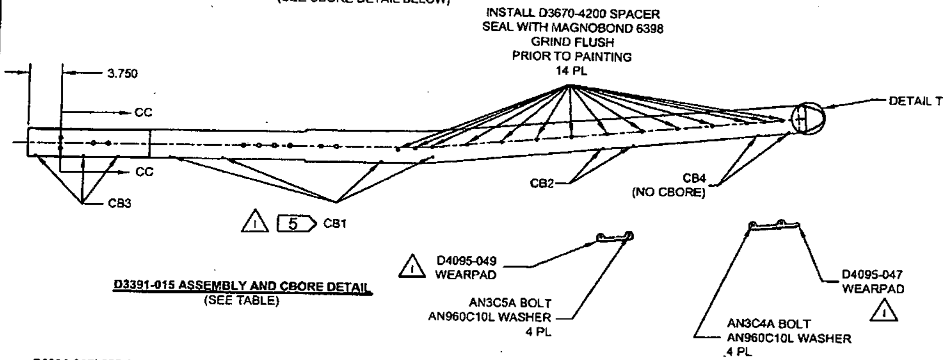
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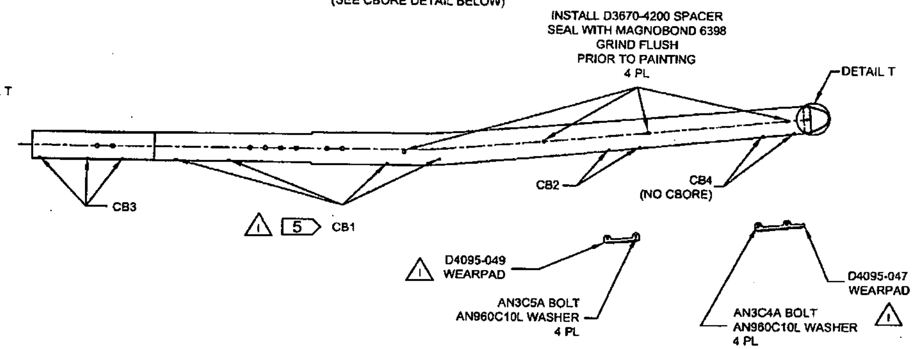
D3391-015 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



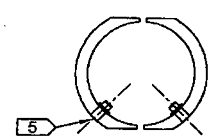
D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)



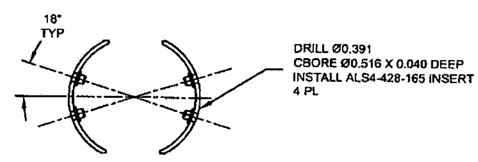
D3391-025 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

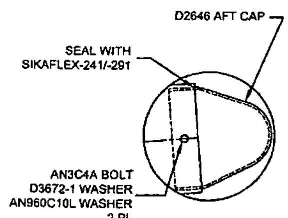
QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D2646	AFT CAP
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
1	1	D4095-049	WEARPAD
1	1	D4095-047	WEARPAD
1	1	D6014-090	AFT TUBE
14	14	AELS-1032-130	INSERT
8	8	AELS-1032-225	INSERT
4		ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER



SECTION U-U
SCALE 3X



SECTION CC-CC
SCALE 3X



DETAIL T
SCALE 4X

RELEASED 2011-11-04

C'BORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-026	CBORE	P/N
CB1	8	8	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

DESIGN	PH	DART AEROSPACE USA, INC KENT, WA
DRAWN	XDF	
CHECKED		DRAWING NO. D3391 — REV. I — SHEET 8 OF 8
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________________ PAR #: ________ Fault Category: ____________________ NCR: Yes No DQA: ______ Date: __________

Resolution: ______________________ Disposition: ______________________ QA: N/C Closed: __________ Date: __________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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